to the prospective planter. The science and practice of rubber-planting are both new, and important developments in both are to be expected. Some of the topics treated in the eleven chapters indicate the scope of the work: The history of the use and cultivation of rubber; The botanical sources of rubber; The physiology of latex production; Planting and harvesting operations; the pests and diseases of *Hevea;* The chemistry of India rubber.

Anyone who is familiar with LOCK's *Recent progress in the study of variation, heredity, and evolution* will know the accuracy and clearness with which the present subject is presented.—J. M. C.

The genus Sabicea.—WERNHAM[4] has published in book form a monograph of *Sabicea*, which is the first of a series of monographs on Rubiaceae. The genus belongs to tropical Africa and America, a large majority of the species being "scrambling shrubs." The number of species reaches 105, and 62 of these are described as new. This is an indication of the harvest of new species the tropics will yield when investigated. The monograph is more than a description of species, for it includes a discussion and graphic illustrations of their interrelationships.—J. M. C.

Weeds.—With the increasing demand for practical lessons for children, it is of interest to note the appearance of a booklet on weeds, by R. LLOYD PRAEGER,[5] as one of the "Cambridge Nature Study Series." The titles of the chapters suggest the contents: What weeds are; The life of a plant; On weeds in general; Seeds and their ways; The war against weeds; Some common weeds.—J. M. C.

The fresh-water flora of Germany, Austria, and Switzerland.—This very compact and well illustrated manual of the fresh-water flora of its region was planned to appear in 13 small volumes, 5 of which have appeared and have been noticed in this journal. Part 6 has now appeared,[6] dealing with three orders of the Chlorophyceae, and prepared by HEERING of Hamburg.—J. M. C.

NOTES FOR STUDENTS

Antarctic vegetation.—The activity in the south polar explorations during the past decade and a half has added somewhat to the botanical knowledge of a remarkably poor flora. In agreement with SKOTTSBERG and others, BROWN[7]

[4] WERNHAM, H. F., A monograph on the genus *Sabicea*. 8vo. pp. 82. *pls. 12*. Published by the British Museum (Natural History). 1914.

[5] PRAEGER, R. LLOYD, Weeds; simple lessons for children. 8vo. pp. x+108. *figs. 45*. Cambridge University Press. 1913. 1*s*. 6*d*. net.

[6] PASCHER, A., Die Süsswasser-Flora, Deutschlands, Österreichs, und der Schweiz. Part VI. Chlorophyceae. 3 (Ulothricales, Microsporales, Oedogoniales) by W. HEERING. pp. 250. *figs. 384*. Jena: Gustav Fischer. 1914.

[7] BROWN, R. N. R., The problems of antarctic botany. Scottish National Antarctic Expedition 3:Bot. 3–20. Edinburgh. 1912.

accepts parallel 60° S. as a more or less natural limit for the antarctic region. Compared with the arctic flora, the antarctic is very poor, including only two species of seed plants (*Deschampsia antarctica* and *Colobanthus crassifolius*), in contrast with about 400 species in corresponding northern areas. The author finds this poverty of vegetation due not so much to the isolation of the land areas in this portion of the Southern Hemisphere as in unfavorable climatic conditions, and chiefly to the very low summer mean temperature, usually below 0° C., while in corresponding arctic regions it is well above this point. SKOTTSBERG considers that the remarkably high winds of the antarctic region must also be considered detrimental to the existence of higher plants. A second adverse factor is found in the immense number of penguins that inhabit during their nesting season every bare spot of land, thus preempting the areas with the best soil conditions for seed plants.

There are no antarctic ferns, but the mosses are represented by 52 species, of which 24 are endemic, 16 northern, and 12 southern. The fact that 16 moss species are common to antarctic and Fuegian lands is perhaps the strongest argument for the Fuegian origin of the antarctic flora. Vegetative reproduction seems the rule among these mosses, very few (6 only) being found with well developed sporophytes.

Only 6 species of hepatics have been found and but a single fungus, *Sclereotium antarcticum*, growing among *Deschampsia* on Danco Island. On the contrary, antarctic vegetation is rich in lichen display, DARBISHIRE[8] recording 106 species, of which 67 are endemic, 25 found also in New Zealand, and 32 in America, these last affording additional evidence of the probability of a migration from Fuegian lands as the origin of the antarctic flora.

SKOTTSBERG'S[9] account of the vegetation of Graham Land, including the South Shetland Islands, is quite in accord with BROWN'S. The mean summer temperature during the warmest months was −2°.14 C., although the uppermost layers of soil usually thawed for a few hours about midday. The best areas for plant life were the islands and the somewhat elevated rocks which the winds kept comparatively free from snow. Here were considerable areas of moss tundra, consisting of species of *Polytrichum*, *Pogonatum*, and *Brachythecium*, thick mats dominated by *Andreaea* and *Grimmia* upon rock surfaces, and a fairly abundant lichen flora, in which species of *Placodium*, *Lecanora*, *Buellia*, and *Neuropogon* were conspicuous. SKOTTSBERG thinks that the present flora is of post-glacial age, but that it also represents the last relic of a vegetation that was formerly somewhat more abundant.—GEO. D. FULLER.

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[8] DARBISHIRE, O. V., The lichens of the Swedish Antarctic Expedition. Wiss. Ergebn. Schwed. Südpolar Exped. 1901–1903. 4: Lief. 11. 1912.

[9] SKOTTSBERG, CARL, Einige Bemerkungen über die Vegetationsverhältniss des Graham Landes. Wiss. Ergebn. Schwed. Südpolar Exped. 1901–1903. 4: Lief. 13. pp. 16. *pl.* 3 and *map*. 1912.